

CLAIMS

1. A handling apparatus for groups of thermoformed objects constantly held in a correct axial alignment, which apparatus includes at least one picking up – release head (2) having as many receiving seats extending parallel to one another from said head (2) as are the stacks (4, 4a, 4b) to be handled, and drive means (7, 19) arranged to move a respective pick up and release head (2) between a stack pick up station (10) and a stack release station (12, 17) of one or more stacks (4) of thermoformed objects and to position it correctly both at the said stack pick up station (10) and at the said stack release station (12, 17), and comprises at least one mobile pusher member (21) arranged to be moved between, and parallel to, the said receiving seats in order to engage at the top thereof the stacks (4, 4a, 4b) of thermoformed objects (5) located in each receiving seat, and control drive means (23) for each mobile pusher member (21), thereby following and hold down each stack (4, 4a, 4b) while the same is being released from its respective receiving seat.
2. A handling apparatus as claimed in claim 1, wherein said receiving seats are each delimited by at least three hooking rods (3) having retractable abutting hooks (6) and is characterized in that the said mobile pusher member (21) comprises a frame or grid.
3. A handling apparatus as claimed in claim 1, wherein said receiving seats are each delimited by a pair of guides (40), characterized in that the said mobile pusher member (21) comprises a bar or a grid.
4. A handling apparatus as claimed in claim 1, wherein the said controlled drive means comprises at least one linear actuator (23).

5. A handling apparatus as claimed in claim 1, wherein at the said release or unloading station (13, 17) comprises at least a mobile abutting or resting member (31) and drive means (32, 42) arranged to move the or each mobile resting member (31) to meet and act as a rest for one or more stacks (4) or stack lengths (4a, 4b) seated and being transferred by said pick up-release head (2) and to move in unison with, but at the opposite side with respect to said pusher member (21), during stack unloading in order to hold well packed the said stacks (4) or stack lengths (4a, 4b) against the said mobile abutting member (31), whereas the said pick up-release head (2) slips off the said stacks (4) or stack lengths (4a, 4b).
6. A handling apparatus as claimed in claim 5, wherein each mobile abutting or resting member (31) comprises a frame or grid.
7. A handling apparatus as claimed in claim 5, wherein each mobile abutting or resting member (31) comprises an abutting bar or plate.
8. A handling apparatus as claimed in claim 6, wherein the said mobile abutting or resting member (31) and the said pusher member (21) are movable vertically.
9. A handling apparatus as claimed in claim 8, wherein the said pick up or release station (10, 12, 17) comprises a receiving plate equipped with vertical receiving guides (g).
10. A handling apparatus as claimed in claim 6, wherein the said mobile abutting or resting member (31) and the said pusher member (21) are movable in a transverse direction.

11. A handling apparatus as claimed in claim 8, wherein the said release or unloading station comprises a tape conveyer (13) equipped with parallel guides (42, 43) which are adjustable in position and arranged to keep packed stacks (4) after the same have been unloaded from the said head (2) and in that at the 5 and of the unloading operation the said pusher member (21) and the said mobile abutting member (31) are designed to be arranged in alignment with a respective guide (42, 43) until all the stacks (4) unloaded onto said conveyer (13) have been transferred in sliding abutting engagement between the said parallel guides (42, 43).

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